

IN THE CLAIMS

1. (Previously Presented) An apparatus comprising:
a thermal management device;
a heat source; and
an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures, the nanostructures having a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules.
2. (Original) The apparatus of claim 1, wherein the thermal management device comprises a passive cooling device.
3. (Original) The apparatus of claim 2, wherein the passive cooling device comprises at least one of a heat sink, a heat spreader, heat pipes, and a heat slug.
4. (Original) The apparatus of claim 1, wherein the thermal management device comprises an active cooling device.
5. (Original) The apparatus of claim 4, wherein the active cooling device comprises at least one of an air jet impingement device and a dielectric liquid device.
6. (Previously Presented) The apparatus of claim 1, wherein the heat source comprises a rectangular piece of silicon material.
- 7.-12. (Canceled)
13. (Previously Presented) An apparatus comprising:
a thermal management device;
a heat source; and

an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures formed on the thermal management device and the heat source, the plurality of nanostructures formed on the thermal management device being coupled to the plurality of nanostructures formed on the heat source, wherein the plurality of nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source have a plurality of molecules covalently coupling the nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source, wherein the plurality of molecules comprises a flexible polymer molecule, and wherein the flexible polymer comprises deoxyribonucleic acid (DNA) molecules.

14. (Original) The apparatus of claim 1, wherein the plurality of nanostructures comprises a plurality of carbon nanotubes.

15. (Previously Presented) A system comprising:
a wiring board;
a memory device electrically coupled to the wiring board;
a heat source electrically coupled to the wiring board;
a thermal management device coupled to the heat source; and
an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures, the nanostructures having a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules.

16. (Previously Presented) The system of claim 15, wherein the wiring board comprises a printed circuit board.

17. (Original) The system of claim 15, wherein the memory device comprises a flash type memory device.

18. (Original) The system of claim 15 wherein the thermal management device comprises a passive cooling device.

19. (Original) The system of claim 18, wherein the passive cooling device comprises at least one of a heat sink, a heat spreader, heat pipes, and a heat slug.

20. (Original) The system of claim 15, wherein the thermal management device comprises an active cooling device.

21. (Original) The system of claim 20, wherein the active cooling device comprises at least one of an air jet impingement device and a dielectric liquid device.

22. (Original) The system of claim 15, wherein the heat source comprises an integrated circuit (IC) die.

23.-28. (Canceled)

29. (Previously Presented) A system comprising:
a wiring board;
a memory device electrically coupled to the wiring board;
a heat source electrically coupled to the wiring board;
a thermal management device coupled to the heat source; and
an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures formed on the thermal management device and the heat source, the plurality of nanostructures formed on the thermal management device being coupled to the plurality of nanostructures formed on the heat source, wherein the plurality of nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source have a plurality of molecules covalently coupling the nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source, wherein the plurality of molecules comprises a flexible polymer, and wherein the flexible polymer comprises deoxyribonucleic acid (DNA) molecules.

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30. (Previously Presented) A semiconductor package comprising:
- a thermal management device;
 - an integrated circuit; and
 - an interface disposed between the thermal management device and the integrated circuit, the interface having a plurality of nanostructures, the nanostructures having a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules.
31. (Original) The semiconductor package of claim 30, wherein the thermal management device comprises a passive cooling device.
32. (Original) The semiconductor package of claim 30, wherein the thermal management device comprises an active cooling device.
- 33.-37. (Canceled)
38. (Previously Presented) The apparatus of claim 30, wherein the nanostructures include a plurality of carbon nanotubes.
39. (Previously Presented) An apparatus comprising:
- a thermal management device;
 - a heat source;
 - a plurality of first nanostructures attached to the thermal management device; and
 - a plurality of second nanostructures attached to the heat source, wherein the first nanostructures are interleaved with the second nanostructures.
40. (Previously Presented) The apparatus of claim 39, wherein at least one of the plurality of first nanostructures and the plurality of second nanostructures includes a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules.
41. (Previously Presented) The apparatus of claim 39, wherein the first nanostructures and

the second nanostructures are disposed in a predetermined pattern.

42. (Previously Presented) The apparatus of claim 39, wherein the thermal management device includes at least one of a passive cooling device and an active cooling device.

43. (Previously Presented) The apparatus of claim 39, wherein at least one of the plurality of first nanostructures and the plurality of second nanostructures includes a plurality of carbon nanotubes.

44.-46. (Canceled)